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DILWORTH & BARRESE, LLP
333 EARLE OVINGTON BLVD.
UNIONDALE, NY 11553

EXAMINER	
CHANG, EDITH M	
ART UNIT	PAPER NUMBER
2637	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/641,147	HWANG ET AL.	
	Examiner	Art Unit	
	Edith M. Chang	2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 December 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7-16 and 24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *7,9-16 and 24-30* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments/Remarks

1. Applicant's arguments filed on December 15, 2004 have been fully considered but they are not persuasive. The rejection of claims 7, 9-10, and 13 is upheld.

Argument: Regarding claim 7, applicants argue that none of the cited references discloses either "a message including a 4 bit ID of a secondary scrambling code" or "using the received ID of the secondary scrambling code".

Response: Chen teaches/suggests secondary code channels (grouped into channel sets, column 23 lines 65-67) of the CDMA channel in which the information scrambling (modulo-2 adding) with secondary scrambling codes of different Walsh codes W_i (i=1 to M+N 148 FIG.5, as stated column 27 lines 11-14) and the identity (ID) of the assigned secondary code channels (included in the information) is transmitted (column 23 lines 60-61, column 23 line 66-column 24 line 4, column 24 lines 12-22, wherein the ID of the secondary code channels equals the identification of the secondary scrambling code transmitted), wherein the ID comprises multiple bits including 4 bits to identify at least the sixteen different group indicator codes as taught by Terashima (FIG. 2A-2C). Hence the cited references disclose both "a message including a 4 bits ID of a secondary scrambling code" and "using the received ID of the secondary scrambling code".

Argument: Regarding claim 7, applicants argue that claim 7 recites "to a secondary scrambling code setting scheme being able to optimize downlink signaling overhead by using a relationship between a primary scrambling code and secondary scrambling codes".

Response: In the claim 7 language, it dose not recite the limitations as argued. The limitations (e.g. the optimize downlink signaling, etc. stated in the arguments) in the specification do not read in the claim when these limitations are *not recited in the claim* (see MPEP 2111).

Argument: Regarding claim 7, applicants argue that Chen et al. fails to disclose the features of having a relationship between a primary scrambling code and secondary scrambling codes and secondary scrambling code setting.

Response: 'The features of having a relationship between a primary scrambling code and secondary scrambling code" is not recited as limitation in the claim 7. Chen teaches the secondary scrambling code setting in FIG.4-6.

Argument: Applicants argue that the secondary code channel disclosed Chen et al., is an orthogonal code, while secondary code channel disclosed in the present application is an ID which identifies secondary scrambling code.

Response: "scrambling code" is the code used to scramble (modulo-2 adding) a signal in spread spectrum technique (CDMA), the Chen et al.'s secondary code channel is scrambled by a secondary scrambling code (Wi and LPN in FIG.5) with an ID identifying the secondary code as recited in the claim.

Argument: Applicants argue that Terashima relates to cell search and discloses features belonging to a category different from the present invention.

Response: Terashima teaches the well-known technique of generating two different scrambling codes (column 2 lines 4-10) using the mask in FIG.5, and FIG.2A-C show the identification is included in the masked segment. As Chen teaches two PN (scrambling) codes

(column 7 lines 9-12), it is obvious to one of the ordinary skill in the art to use Terashima's teaching to generate two PN codes. Chen's teaching is for the capacity of the channels when the users requesting high data rate communications (column 4 lines 24-28), and Terashima's teaching is in the WCDMA system to generate PN codes based on two codes (FIG.15, D_{CSC} + D_{GISC} & D_{LC}), hence they belong to the same category as the invention, a mobile communication system expands a channel capacity using a plurality of scrambling codes (page 1 lines 15-18).

Argument: Regarding claims 9-10, applicants argue that claim 9 recites transmitting to a mobile station "an ID of a secondary scrambling code for expanding a capacity of channels to be used by the mobile station...which can be used with the primary scrambling code". Popovic does not disclose, "an ID of a secondary scrambling code" being received by a mobile station as recited in claim 9.

Response: Popovic teaches primary synchronization code and secondary synchronization code being generated by the base station (column 19 line 65-column 20 line 11) for the primary synchronization channel (P-SCH) and the secondary S-SCH (column 19 line 65-column 20 line 1), and the mobile station correlates a secondary synchronization sequence (column 13 lines 49-52) wherein the mobile station receives the identification of the secondary.

Argument: Applicant argues that Popovic fails to disclose any relationship between a primary scrambling code and secondary scrambling codes and secondary scrambling code setting.

Response: Popvic teaches the SSC (used for synchronization channel/SCH) is generated by multiplying the PSC by 17 different Walsh functions (column 20 lines 11-13), and it is well known (taught by Terashima for asynchronous CDMA, column 1 lines 5-10) that the

primary scrambling code (long code, the same for all base stations) and the secondary scrambling code (short code) generated with the group identification code of the primary scrambling code for dispreading (correlating).

Argument: Regarding claim 13, applicant argues that neither Terasawa et al. nor Nystrom et al. discloses either "receiving an ID of a secondary scrambling code from the base station" and "generating the secondary scrambling code by combining the ID of the primary scrambling code and the ID of the secondary scrambling code" as recited in claim 13.

Response: Terasawa teaches the primary code and the secondary code used in the scrambling codes in FIG.5, wherein the identification of the secondary code is carried by the secondary code (column 7 lines 24-28 & lines 34-43, wherein the secondary code carries the identification of the phase shift based on the secondary code and the secondary code itself). Further Nystrom et al. teaches the technique of/how the identities of the scrambling code groups (identification of the primary scrambling code) being encoded in the signals (column 3 lines 53-56). Hence the combined/modified Terasawa method teaches the limitations.

Claim Objections

2. Claims 8 and 24-29 are objected to because of the following informalities:

Claim 8, lines 2 & 6: "scrambling code" is suggested changing to "secondary scrambling code"; line 4: "a second" is suggested changing to "the second".

Claim 24, line 4: "the base station" is suggested changing to "a base station".

Claims 25-29 are dependent on the objected claim 24.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 24-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24, line 7: "the scrambled channel signals" is not clearly indicated that it is the scrambled common channel signals or the scrambled data channel signals.

Claim 28, line 2: "the data channel presently in service" lacks antecedent basis.

Claims 25-27 and 29 are dependent on the rejected claim 24.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. (US 5923650) in view of Terashima (US 6385232 B1) and Terasawa et al. (US 6385264 B1).

Regarding **claim** 7, in FIG.6 & FIG.7, Chen et al. discloses a channel communication method for a mobile station, comprising the steps of:

transmitting a channel assignment request to a base station, when it is required to assign a new channel in column 23 lines 42-48 wherein the traffic/secondary code channel is assigned during the call set up with a cell (i.e. a base station). The CDMA call set up comprises the mobile station (remote station) sending the message to the base station for communication channel/access link set up, this is well known in the art (column 6 lines 47-60);

Receipting the ID of a secondary scrambling code from the base station, transmitting a response message to the base station in column 23 lines 58-61 wherein the ID of the assigned secondary code channels is transmitted to mobile station that the mobile station transmitting a response (transmitting the data) over the secondary/traffic channel; and

generating the secondary scrambling code and descrambling a downlink channel signal with the generated secondary scrambling code (as the mobile station using the assigned secondary code channel communicates to the base station, it generates the secondary scrambling code and descrambling a downlink channel signal with the generated secondary scrambling code, column 23 lines 58-59).

Chen teaches/suggests secondary code channels (grouped into channel sets, column 23 lines 65-67) of the CDMA channel in which the information modulo-2 adding/scrambling with secondary scrambling codes of different Walsh codes (as stated column 24 lines 12-22) and the identity (ID) of the assigned secondary code channels (included in the information) is transmitted (column 23 lines 60-61), wherein the ID comprises multiple bits including 4 bits to identify at least the sixteen different group indicator codes. However, Chen et al. does not specify using a mask to generate a secondary scrambling code with 4 bits ID.

With respect to using a mask to generate a secondary scrambling code, Terashima teaches using a mask to generate a secondary scrambling code (FIG.5 the short code is the secondary scrambling code, the mask is generated from 46). As Chen teaching two PN (scrambling) codes (column 7 lines 9-12) and Terashima's teaching generates multi scrambling codes to synchronization detect device, therefore, it would have been obvious to one skilled in the art at the time of the invention to have the secondary code generator taught by Terashima in Chen et al.'s remote station (FIG.2 64 DEMOD '650), for the purpose of accurately identifying codes to be detected at high speed and having a efficient circuit (column 6 lines 19-22).

With respect to the 4 bits ID, Terasawa et al. teaches 16 secondary codes that needs 4 bits to identify the 16 codes (column 2 lines 52-54). Through Tersawa et al.'s teaching the apparatus/method is prepared to accommodate the Wideband CDMA. Therefore, it would have been obvious to one skilled in the art at the time of the invention to have the 4 bits ID for the 16 codes to synchronize the received signal for the proposed W-CDMA system (column 1 lines 53-60, column 2 lines 49-54).

7. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Popvic' (US 6567482 B1).

Regarding **claim 9**, in FIG.1 and column 1 lines 5-10, Popovic discloses a communication method for a base station in CDMA, comprising:

transmitting spread data to a mobile station which detects a synchronization sequence from the spread data/signal sent from the base station (column 13 lines 47-52, wherein the primary synchronization sequence/code provides the primary scrambling code representative

used by all base stations) over a common channel providing the synchronization sequence (column 5 lines 25-27, column 3 lines 45-49 wherein the downlink direction is the BS transmitting to the remote terminal over a common channel for synchronization sequence);

transmitting to a mobile station a secondary synchronization sequence code (column 13 lines 49-51 wherein the MS get the identification of a secondary scrambling code from the secondary synchronization sequence code) particular to the base station (column 13 lines 50-52) for the mobile to communicate to the BS (for receiving/scrambling data, column 13 lines 61-67).

Since Popovic teaches the primary synchronization code (PCS) and the secondary synchronization codes (SSCs) in column 19 line 65-column 20 line 1 of the third generation cellular communication systems (column 2 lines 56-60), at the time of the invention was made, it is obvious to a person of the ordinary skill in the art that Popovic teaches the primary synchronization channel (P-SCH) and the secondary S-SCH to carry the PCS and SSCs, wherein the PCS comprises the information of the primary scrambling code used by the base station and SSCs comprise the information of the secondary scrambling code and the group indication of the primary scrambling code associated.

Regarding **claim 10**, Popovic discloses 16 signatures which need 4 bits to identify (column 4 lines 40-50).

Regarding **claim 11**, Popovic discloses the one sequence (the primary one) transmitted over a common control channel (column 5 lines 24-27).

Regarding **claim 12**, Popovic discloses the other sequence (the secondary for increasing capacity) is over the access channel (column 3 lines 51-60, Fig.8B wherein the column 5 lines 33-36) to communicate with the BS.

8. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terasawa et al. (US 6385264 B1) in view of Nystrom et al. (US 6526091 B1).

Regarding **claim 13**, Terasawa et al. discloses a channel code communication method for a mobile station in a CDMA communication system (Abstract), comprising the steps:

Acquiring an ID of a primary scrambling code representative of an identification code provided to a base station (column 1 line 54-column 2 line 3) during initial sync setting (column 2 lines 40-49);

Receiving a secondary scrambling code from the base station (FIG.1 & FIG.3 wherein the secondary scrambling code generated);

Generating the secondary scrambling code by combining the primary scrambling code and the secondary scrambling code (FIG. 4).

However Terasawa et al. does not explicitly specify the ID of the scrambling code and dispreading a received data signal with the generated secondary scrambling code.

Nystrom et al. teaches the ID of the scrambling code is in the signal (FIG.9A, column 3 lines 50-55 wherein the ID of the code groups are encoded in the signals) and dispreading a received data signal with the generated secondary scrambling code (FIG.3 SSC & column 5 lines 20-33, FIG.7 702). As Terasawa et al.'s apparatus for wideband CDMA system with extended scrambling codes (column 2 lines 17-26, wherein the 32 code groups further identify the base station PN scrambling code) conveyed in the SCHs (column 2 lines 4-5, FIG.1) and Nystrom et al.'s teaching determines a scrambling code group for a received signal. Therefore, it would have been obvious to one skilled in the art at the time of the invention to have the ID of the scrambling

code in the signal for the purpose of helping synchronize the mobile station to the base station and improving the synchronization channels (column 3 lines 37-45);

Regarding **claim 14**, further Nystrom et al. teaches the secondary code having 16 possible different sequences that can be identified using 4 bits (column 5 lines 20-33).

Regarding **claim 15**, Terasawa et al. teaches the secondary scrambling code is received over a synch channel which is a common control channel (column 1 lines 52-65).

Regarding **claim 16**, Terasawa et al. teaches the secondary scrambling code is received over a downlink dedicated channel (column 2 line 65-67, column 3 lines 22-27, FIG.2/FIG.4).

9. Claims 24-25, and 27-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg et al. (US 6,504,830 B1) in view of Chen et al. (US 5,923,650).

Regarding **claims 24 & 30**, in FIG.1A and FIG.4, Ostberg et al. teaches a W-CDMA communication system and its method. In FIG.1A, the W-CDMA system comprises a base station 120 and a mobile station 130. The base station *scrambles* the Perch channels (the Perch channels are common channels, column 3 lines 33-37, lines 39-42, wherein the physical channel is scrambled with the Long Code/primary scrambling code specific to the base station) comprising a LCMS (Long Code Mask Symbol, the LCMS in the time slot of the Perch 2 as the secondary scrambling code identifier) including the SSC (column 5 lines 52-54) which to identify a Long Code Group (LCG) corresponding to the Long Code identified by the PSC in the Perch 1 (column 3 lines 45-48, FIG.2A), wherein the LCMS in the time slot of the Perch 1 identify the primary scrambling code (column 5 lines 52-53, FIG.2A); *transmits* signals/data streams to mobiles with Short Code and Long Code (column 2 line 66-column 3 line 6) wherein

the Long Code is further identified by the LCG in the SSC wherein the Long Code (the primary scrambling code in the PSC) is associated (*identifying*) with a particular BS (column 3 lines 2-4); and the mobile station receives/*descrambles* the common channel signals and perform the synchronization (step 401 FIG.4, column 6 lines 49-57); and used the LCG (ID information) included in the common channel signals receive/*descramble* the data channel with the secondary scramble code identified by the LCG (column 6 lines 64-67, wherein the LCG indicate the candidate of the Long Code in the LCG that is the secondary scrambling code used to transmit data/traffic) generated by the MS. However, Ostberg et al. does not explicitly specify the well known scrambling I and Q modulated signal.

In FIG.6, Chen et al. teaches the complex scrambling codes (column 26 lines 25-33) comprising a real component (LPN_I) and an imaginary component (LPN_Q). At the time of the invention made, it would have been obvious to one of ordinary skill in the art to have the complex scrambling code technique taught by Chen et al. in both BS and MS to generate the scrambling codes to transmit/receive the encoded and modulated CDMA signals especially for the BPSK or QPSK modulated signals.

Regarding **claim 25**, Ostberg et al. teaches the Primary Common Control Physical Channel (column 3 lines 33-37).

Regarding **claim 27**, Ostberg et al. teaches one LCMS consisting 4 bits for the 16 groups/types of the 512 Long Code.

Regarding **claim 28**, Ostberg et al. teaches the secondary scrambling code in the control channel signal associated the scrambling code used by the BS communicated to the MS (step 440

FIG.4, wherein the scrambling code used by the BS is determined after the LCG in the SSC identifying the Long Code specific to the BS), hence associate the data channel in service.

Regarding **claim 29**, the modified/combined Ostberg et al.'s apparatus with Chen et al.'s teaching discloses shifting the imaginary component by ½ chip which equivalents shifting the real component in the reverse direction.

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ostberg et al. (US 6,504,830 B1) in view of Chen et al. (US 5,923,650) as applied to claim 24 above, and further in view of Terasawa et al. (US 6,385,264 B1).

Regarding **claim 26**, Ostberg does not specify the well-known dedicated physical channel to carry data stream in the wideband CDMA system, however Terasawa et al. teaches the dedicated physical channel spread with a scrambling code specific to the BS for the data stream (FIG.2 to FIG.5, column 2 lines 65-67, column 3 lines 22-27). At the time of the invention made, it would have been obvious to one of ordinary skill in the art to have the dedicated physical channel for data stream taught by Terasawa et al. to accommodate with the W-CDMA channel structures.

Allowable Subject Matter

11. Claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a channel communication method for a mobile station in a mobile communication system as a whole, the combination of elements and features, which includes generating a masked sequence by operating a first sequence with the mask generated by using the received ID of a secondary scrambling code and generating the second scrambling code by operating the masked sequence with a second sequence.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jayanti Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
May 26, 2005

YOUNG T. TSE
PRIMARY EXAMINER